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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,543	04/19/2001	Stig Sarkimukka	2466-63	7576

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EXAMINER	
ARTMAN, THOMAS R	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/837,543	SARKIMUKKA ET AL.	
	Examiner	Art Unit	
	Thomas R Artman	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-9 and 11-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9 and 11-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, see Amendment, filed June 1st, 2004, with respect to the rejections of claims 1-15 under Chang (US 6,111,673) in view of Roberts (US 5,949,560) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Brede et al. (US 6,603,822).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-7, 9, 11-14 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 6,111,673) in view of Brede (US 6,603,822).

Regarding claims 1 and 9, Chang discloses an optical communication link and the method of transmission (col.4, lines 41-62), including:

1) a transmitting side and receiving side with high priority information being transmitted over a fiber link in a plurality of wavelength bands,

2) each band has different transmission characteristics that vary with time, such as polarization mode dispersion (PMD),

3) a first switch for transmitting high-priority information in a number of wavelength bands smaller than the total number of wavelength bands (col.4, lines 53-55), and

4) a controller connected to the first switch for selecting at each instant a wavelength band for transmitting the high priority information (switching to a "preferred path," col.4, lines 41-45).

Chang does not specifically disclose the method of switching in order to provide a sufficient total quality of the transmission or a quality-determining device connected at the receiving side for determining the quality. Chang teaches the routing of high priority information to a preferred path (different wavelength band, fiber link, or combination of both, col.4, lines 49-57).

Brede discloses a WDM communication system that sends high and low priority data signals over a set of wavelength bands (col.113, lines 56-67, and col.117, lines 40-45). Brede teaches the practice of switching wavelength bands (avoiding channels) when overall quality deteriorates beyond a predetermined value, then uses the wavelength band once the quality improves (col.72, lines 44-53, and col.114, lines 1-14). Brede further discloses a downstream quality monitor 900 for determining the quality of the channel and providing the controller (head end) with the necessary quality information (col.114, lines 12-29). In this way, data signal integrity can be maintained by switching the data signal to different wavelength channels as signal quality fluctuates.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the communication system of Chang to have a quality-determining device at the receiving side for determining the quality of a high-priority signal and to give the controller the necessary information for switching the signal to a different wavelength band such that a sufficient quality of the high-priority signal is maintained as taught by Brede for improved signal integrity.

With respect to claims 3, 11, 16 and 19, Chang specifically discloses that each end (node) of a transmission link has cross-connects to perform the necessary switching of the transmitted information (col.7, line 53, to col.8, line 3), where each switch has the necessary number of input and output ports for each band that the transmission link uses.

Further regarding claims 11 and 16, Chang's information originates as electrical signals (electrical layer 110). Additionally, it is standard in the art. Optical information signals begin and end at electro-optic devices in order to communicate with the standard all-electrical computer technology.

With respect to claims 4, 12, 17 and 20, neither Chang nor Brede teach switching in the electrical domain.

However, electrical cross-connects are well known in the art and used in electrical telecommunication systems. One having ordinary skill in the art would contend that using electrical cross-connects to interface with an optical network provides a simple, cost-effective upgrade of existing communication systems.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Chang to perform the switching in the electrical domain. Switching in the electrical domain using existing electrical switches provides cost-effective upgrades for current communication networks.

With respect to claims 5, 13, 18 and 21, Chang performs the switching in the optical domain (optical layer 120).

With respect to claims 6 and 14, Chang's switch (Fig.4) is electro-optic and has selectable (tunable) delays, where the signals are then transmitted out of the switch.

With respect to claim 7, Chang teaches that the paths not used for the high priority signals are utilized for lower priority signals.

Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang and Brede, as applied to claims 1 and 9 above, in view of Roberts (US 5,949,560).

Regarding both claims, Chang and Brede do not specifically disclose the use of polarization mode dispersion (PMD) compensators.

Roberts teaches the use of adding PMD compensators arranged for each channel and connected at one end of a fiber link (col.10, lines 35-39) in order to compensate for the PMD in

the signal. As is standard in the art, PMD compensators are used to improve the quality of a transmitted signal by essentially reversing the PMD experienced by a transmitted signal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the combination of Chang and Brede to use a PMD compensator such that the quality of transmission is improved.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (571) 272-2485. The examiner can normally be reached on 9am - 6:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas R. Artman
Patent Examiner

EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER